Amendments to the Specification:

Please replace the paragraph beginning at page 3, line 5 with the following rewritten paragraph:

US Patent No. 5,008,743 uses a planar Fresnel plastic lens as a means for achieving telecentric imaging together with a conventional camera and objective, involving a less expensive solution. Due to their optical properties resulting from their discontinuous design, these lenses produce ~~colour~~ color errors and considerably impaired image quality. Due to the ~~colour~~ color error, different ~~colours~~ colors are imaged from the same point of the object on the surface of the CCD cell on mutually different photosensitive measuring elements. This obviously results in a larger measuring error. A measuring error caused by a ~~colour~~ color error can be corrected with the use of a ~~colour~~ color filter on the radiation path, so that part of the spectrum is removed by filtering. Nonetheless, filtering reduces the intensity of the radiation emitted by the object, and light sources with higher power must consequently be used. This results in a further increase of the price of the system. A ~~colour~~ color error can be corrected also by means of programming, as described in this specification. Despite this, the measuring error will be greater than it would be if the object were inspected and measured with appropriately corrected opticals.

Please replace the paragraph beginning at page 4, line 18 with the following rewritten paragraph:

The main objective of the invention is to provide an apparatus forming a telecentric imaging system, by means of which optical imaging errors and especially ~~colour~~ color errors, i.e. dispersion are avoided as much as possible, and which involves a relatively small~~ed~~ size and relatively light-weight design, which is also less expensive than conventional telecentric objectives. A second objective of the invention is such an apparatus forming a telecentric imaging system, which produces a high-contrast image of a diffusingly reflective object located on a diffusingly reflective substrate, i.e. the intrinsic contrast differences of the object should be sufficient to form an image which can be interpreted. A third objective of the

invention is an illuminating arrangement associated with the apparatus forming a telecentric imaging system, which provides illumination of the object which is sufficiently homogenous and free of shadows, and which does not affect the telecentric imaging system.

Please replace the paragraph beginning at page 5, line 4 with the following rewritten paragraph:

The drawbacks described above are eliminated and the objectives defined above are achieved with the apparatus of the invention, which is ~~characterised~~ characterized by the features defined in the claims and the method of the invention, which is ~~characterised~~ characterized by the features defined in the claims.

Please replace the paragraph beginning at page 5, line 9 with the following rewritten paragraph:

It has now been surprisingly found in accordance with the invention that with the use of a concave curved mirror with a parabolic surface, with the camera objective placed in its focal plane or in the vicinity of its focal plane, a first-rate telecentric imaging system is achieved which is almost totally free of imaging errors. Parabolic mirrors, i.e. mirrors in the shape of a concave surface formed by a parabola rotated about its axis, have indeed been used in astronomic telescopes. Nevertheless, parabolic mirrors have not been used at all e.g. in the manufacture of camera objectives, unlike spherical mirrors, nor in other imaging systems intended for objects on the earth, because the imaging errors of a parabolic mirror with respect to rays from the outside having a different direction than that of the parabolic axis, are notably greater than in a spherical mirror. The production costs of a parabolic mirror are also very high. In the method of the invention, the mirror is strip-like, and is thus better adapted for a line camera. The production costs of a strip-like mirror are also moderate. In one embodiment of the invention, the strip-like concave mirror is parabolically shaped in one direction and planar in a direction perpendicular to the this first direction, i.e. it is a planar-parabolic mirror, which has quite economical production costs and still very high light-collecting efficiency. In addition, by disposing a strip-like planar mirror between the

concave mirror and the camera in accordance with the invention, an apparatus with relatively compact dimensions is achieved. In accordance with the invention, the apparatus is used ~~i.a.~~ i.e. in the sawmill industry in the measurement of the width of boards cut from logs, or in any similar manufacture, to measure the width of strips cut from a moving object. ~~Optimisation~~ Optimization of the width of boards or other strip-like objects is important, because this yields maximum profit of the sawn goods. There will also be less reclamation, because the quality control will be enhanced and more accurate. On the other hand, changes in the width of boards or strips during the sawing or cutting also reveal the state of the saw blades or similar cutter blades, so that these can be replaced at the right moment.

Please replace the paragraph beginning at page 7, line 2 with the following rewritten paragraph:

Figure 1 shows an application of the apparatus of the invention. In the figure, the light 3 comes from a box 2 containing an apparatus 22 comprising a camera and a light source which illuminates boards 21a, 21b, 21c etc. sawn from a log which constitutes the object 1 to be monitored and measured, the boards moving on a conveyor belt ~~16~~20 in direction F, which is typically perpendicular to the length L1 of the concave curved mirror 6 of the invention and to the length L4 of the linear CCD cell, i.e. the row 15 of photosensitive cells or diodes. The camera 9 in the box 2 images the sawn boards and transmits the data in digital form to the computer 11, which calculates the results, i.e. the widths or dimensions D1, D2, D3 etc. of the boards and displays them on the terminal screen 12. The sawmachine operators see the results, which enables them to control the saw blades 13 so as to achieve an optimal ~~broad~~ board width. The results also enable them to conclude the state of the saw blades and to replace them before they suffer too much damage or even break. Using the keyboard 14, the operators may feed the computing parameters into the computer. Figure 2 shows how the light sources 7 illuminate the sawn boards 21a, 21b, 21c, etc. from above. Rays 4 parallel with the optical axis of the concave curved mirror 6 emanate in alignment to the curved mirror 6 of the invention from the light 24 reflected from the sawn boards, whose upper

surfaces are diffusingly reflecting and irregularly spaced both from the light source and from the telecentric imaging means 18, the rays 4 being reflected in one embodiment of the invention from the curved mirror 6 to a plane mirror 5, and from there to a camera 8. The aperture of the camera objective 8 is located in the focal plane 10 of the curved mirror 6 or in the immediate vicinity of this, thus providing a telecentric imaging system. The conventional, yet high-quality objective 8 of the camera 9 forms ~~and~~ an image of the object 1 on the surface of the row 5 of photosensitive cells of the CCD cell, this surface forming the image plane 19. When the object 1 is at less than an infinite distance from the telecentric imaging means 18, the object must be focused in order to form a sharp image on the image plane 19, and this is usually done in the ordinary way by increasing the distance between the objective 8 and the image plane 19.

Please replace the paragraph beginning at page 11, line 20 with the following rewritten paragraph:

In order to avoid imaging errors as efficiently as possible and thus to eliminate any need for correcting them, the reflective surfaces 26, 25 of the strip-like parabolic mirror or the planar parabolic mirror 6, respectively, and the strip-like plane mirror 5, are preferably metal surfaces which are open on the reflecting side, and thus the rays 4 passing through the telecentric imaging means 18 will not have to pass through glass or plastic layers with at least a substantial thickness, which would generate at least dispersion. The coating of reflective metal Me can be carried out on a correctly shaped concave parabolic surface of glass or plastic G, as in figure 5A. This does not prevent the reflective metal surface 25, 26 from being coated with a thin e.g. anti-corrosive layer, or the reflective metal surface 25, 26 from being formed on the convex rear surface 27 of a thin glass or plastic body 23 which is pervious to radiation, with the concave mirror directed in the opposite direction. This latter option is also applicable provided that the thickness T of the glass body or plastic body 23 is very small relative to the focal distance and length of the concave mirror, and also is uniform or almost uniform, i.e. that both the surfaces 27, 28 forming the length and the width L2 and W2 or L1 and W1, respectively, are aligned point by point, as shown in figure 5C. It is

difficult to make mirrors with such a length from glass G. Thus the recommended material is metal, such as ~~aluminium~~aluminum, copper or steel, with the mirror made entirely of metal Me as in figure 5B. Among these, ~~aluminium~~ aluminum and copper are easiest to work. On the other hand, copper restricts the area of the visible spectrum starting from 600 nm upwards. In other words, if the entire spectral area is to be ~~utilised~~ utilized, ~~aluminium~~ aluminum is the most recommendable.

Please replace the paragraph beginning at page 14, line 2 with the following rewritten paragraph:

The object 1 may consist of a log of timber, a metal sheet or any similar elongated body not having straight edges, which is moved by a transport base 20, and which is worked into one or more strips 21a, 21b, 21c etc. having a width less than the original width. By measuring the undistorted telecentric image as described above the dimensions D1 and/or D2 and/or D3...Dn of said strips to be worked are controlled. With a view to this measurement and the output described above, the photosensitive cells of the camera 9, such as suitable diodes or the CCD cell proper, generate electric signals of the received radiation data, and the signals are transmitted to the processor of the computer 11. The computer writes out the ~~analysed~~ analyzed signals either on a display 12, or they are used in some otherwise suitable manner for controlling the manufacture.